

**IN THE CLAIMS**

The following page contains a listing of the claims of record, showing claim 16 as currently amended.

## LISTING OF CLAIMS

### **Claims 1-15 (Canceled)**

**16. (Currently Amended)** Process to simulate the response of a radiation detector ~~which detects (D) in detecting~~ radiation emitted by radioactive objects (16), each object containing a radioelement or a mix of radioelements, comprising the steps of:

memorizing the radioactive emission spectra representative of the radio elements or mixes of radioelements;

determining the detection characteristics of the detector in the form of coefficients and data ~~which model~~ modeling of the thickness through which the radiation passes;

determining the operating characteristics of received radiation;

choosing the radio elements or mixes of radioelements from the radioelements whose radioactive emission spectra are memorized and which are representative of the content of the objects, and

using ~~a computer to carry out the process based upon~~ the detection characteristics of the radiation detector and the operating characteristics of the received radiation, ~~to individually reproduce for reproducing~~ the radiation emitted, for the chosen radioelements or mixes of radioelements and for developing a simulated ~~simulating the~~ response of the radiation detector, in which the radioactive objects (16) are nuclear fuel elements.

**17. (Previously Presented)** Process for the inspection of a set of nuclear fuel elements comprising implementing the simulation process according to claim 16 further characterized by:

analyzing the real composition of any of the elements of said set of nuclear fuel elements;

calibrating the detector using the element for which the real composition has been analyzed,

correcting the simulated response using the response of the detector obtained during calibration, and

inspecting said set of elements.

**18. (Previously Presented)** Process according to claim 17, in which the nuclear fuel elements are nuclear fuel rods, which include stacks of pellets of nuclear fuel.

**19. (Previously Presented)** Process according to claim 18, in which the detector comprises an annular scintillator.

**20. (Previously Presented)** Process according to claim 18, in which the detector comprises a sodium iodide scintillator.

**21. (Previously Presented)** Process according to claim 16, in which the detection characteristics of the detector comprise data representative of the thickness through which the radiation passes before it is detected.

**22. (Previously Presented)** Process according to claim 16, in which the operating characteristics of the received radiation include the operative angle of the radiation detector (D), detected energy bands and electronic amplification characteristics of the radiation detector.

**23. (Previously Presented)** Process according to claim 16, in which regression straight lines are also built up starting from the simulated response.

**24. (Previously Presented)** Process according to claim 16, in which the detector is a gamma radiation detector.